

## CLAIMS:

1. A control unit adapted for controlling a laser unit, wherein:

- the laser unit comprises a laser gain medium and an external cavity having a reflecting dispersion device,
- 5       • the laser gain medium is adapted for providing a first beam towards the reflecting dispersion device,
- the reflecting dispersion device is adapted for receiving the first beam and reflecting a beam, having a reflection angle dependent on the wavelength, towards the laser gain medium, and
- 10      • the laser gain medium is adapted for providing a second beam in another direction than the first beam;

the control unit comprising:

an angle unit adapted for providing an angular variation signal indicative of an angular variation of the second beam, and

15       an analysis unit adapted for receiving the angular variation signal and controlling the reflection angle of the reflecting dispersion device dependent on the angular variation signal.

2. The control unit of claim 1 or any one of the above claims, wherein the angle unit comprises an angle detection unit adapted for detecting the angular variation of the second beam and deriving the angular variation signal in correspondence with the detected angular variation.

20       3. The control unit of claim 2 or any one of the above claims, wherein the angle detection unit comprises a position dependent detector adapted for receiving the second beam, or a part thereof, and detecting the angular

variation from a lateral variation of the received beam detected along the position dependent detector.

4. The control unit of claim 2 or any one of the above claims, wherein the angle detection unit comprises two power detectors each receiving a portion of the second beam, wherein the ratio of the two portions depends on the angular variation of the second beam.
5. The control unit of claim 1 or any one of the above claims, further comprising:

10 a beam splitter adapted for receiving and splitting the second beam into one portion to be provided to the angle unit and into another portion to be provided to a coupling unit adapted for coupling out the received portion of the second beam, preferably into at least one of an optical fiber and optical signal carrier.
6. The control unit of claim 1 or any one of the above claims, further comprising a power detector adapted for determining a power value indicative of the total power of the second beam.
7. The control unit of claim 6, wherein the angle unit is adapted to determine the angular variation signal based on power value indicative of the power and the determined power value indicative of the total power of the second beam.
8. The control unit of claim 1 or any one of the above claims, wherein the analysis unit is adapted for controlling the reflection angle of the reflecting dispersion device in order to provide at least one of the following:

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  - keep the angular variation substantially constant,
  - keep the angular variation substantially constant with respect to a

reference angle, and preferably substantially zero.

- keep the angular variation substantially zero with respect to a reference angle.

9. The control unit of claim 1 or any one of the above claims, wherein the  
5 analysis unit is adapted for controlling at least one of a rotation, a shift,  
and a lateral shift of the reflecting dispersion device.

10. The control unit of claim 1 or any one of the above claims, further  
comprising:

10 a modulator adapted for modulating the reflection angle of the reflecting  
dispersion device with a modulation signal, preferably modulating around  
a center value,

15 wherein the analysis unit is adapted for deriving an error signal by  
analyzing the modulated angular variation signal in conjunction with the  
modulation signal, and for controlling the reflection angle of the reflecting  
dispersion device dependent on the derived error signal.

11. The control unit of claim 1 or any one of the above claims, further  
comprising:

a second angular detector adapted for detecting a second angular error  
perpendicular to the first, and

20 an analysis unit adapted for receiving the second angular variation signal  
and controlling the second reflection angle perpendicular to the first  
reflection angle.

12. A laser unit comprising a laser gain medium and an external cavity having  
a reflecting dispersion device, wherein:

- the laser gain medium is adapted for providing a first beam towards the reflecting dispersion device,
- the reflecting dispersion device is adapted for receiving the first beam and reflecting a beam, having a reflection angle dependent on the wavelength, towards the laser gain medium, and
- the laser gain medium is adapted for providing a second beam in another direction than the first beam;

5 the laser unit further comprises a control unit of claim 1 or any one of the above claims adapted for controlling the laser unit.

10 13. The laser unit of claim 13 or any one of the above claims, comprising one or more of the following features:

- the second beam represents an output beam of the laser unit,
- the laser gain medium comprises at least one of: an amplifying waveguide, a doped crystal or glass, a gas cell, a dye cell,
- 15 • the reflecting dispersion device comprises at least one of: a grating, a dispersion prism, a reflecting device such as a mirror or a dihedral prism.

14. A method for controlling a laser unit, wherein:

- 20 • the laser unit comprises a laser gain medium and an external cavity having a reflecting dispersion device,
- the laser gain medium is adapted for providing a first beam towards the reflecting dispersion device,
- the reflecting dispersion device is adapted for receiving the first beam and reflecting a beam, having a reflection angle dependent on the

wavelength, towards the laser gain medium, and

- the laser gain medium is adapted for providing a second beam in another direction than the first beam;

the method comprising the steps of:

- 5 (a) providing an angular variation signal indicative of an angular variation of the second beam, and
- (b) controlling the reflection angle of the reflecting dispersion device dependent on the angular variation signal.

15. A software program or product, preferably stored on a data carrier, for  
10 executing the method of claim 14 when run on a data processing system  
such as a computer.